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COMPUTER-AIDED ENVIRONMENTAL L..(U) CONSTRUCTION  
ENGINEERING RESEARCH LAB (ARMY) CHAMPAIGN IL

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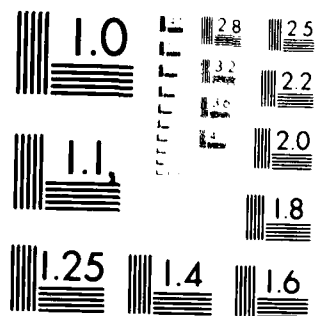
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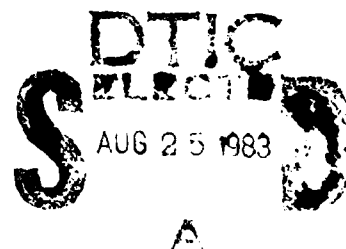


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SPECIAL REPORT N-161  
July 1983

ADDITION OF COAL MINING REGULATIONS  
TO THE COMPUTER-AIDED ENVIRONMENTAL  
LEGISLATIVE DATA SYSTEM (CELDS)

by  
Ronald D. Webster  
Elizabeth Herrick  
Mary Tadie Grieme



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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER CERL-SR-N-161	2. GOVT ACCESSION NO. <b>A131805</b>	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) ADDITION OF COAL MINING REGULATIONS TO THE COMPUTER-AIDED ENVIRONMENTAL LEGISLATIVE DATA SYSTEM (CELDS)		5. TYPE OF REPORT & PERIOD COVERED FINAL
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Ronald D. Webster Elizabeth Herrick Mary Tadie Grieme		8. CONTRACT OR GRANT NUMBER(s) DE-A101-81EV10597
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. ARMY CONSTRUCTION ENGINEERING RESEARCH LABORATORY CHAMPAIGN, IL 61820		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Department of Energy Operational and Environmental Safety Division Washington, DC 20545		12. REPORT DATE July 1983
		13. NUMBER OF PAGES 26
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report)  Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES  Copies are available from the National Technical Information Service Springfield, VA 22161		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)  Computer-Aided Environmental Legislative Data System (CELDS) coal mines regulations information retrieval		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  Department of Energy (DOE)-specific regulations on mining have been added to the Computer-Aided Environmental Legislative Data System (CELDS), an online, interactive database developed by the U.S. Army Construction Engineering Research Laboratory (CERL). CELDS indexes and abstracts environmental regulations of the Federal govern- ment and the 50 states. Included now are coal mining regulations for the Federal govern- ment and those states having Department of Interior approval for their mining programs. The coal mining regulations cover Federal regulatory programs for surface mining and		

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BLOCK 20. (Continued)

- underground mining of coal on Federal, Indian, and private lands. A draft thesaurus of mining terms has been developed. This thesaurus, which will be merged into the existing CELDS thesaurus, will be used to index CELDS records which cover coal mining regulations. The thesaurus terms cover both coal mining technology and environmental impacts of coal mining.

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## FOREWORD

This project was performed for the Department of Energy, Operational and Environmental Safety Division, under Interagency Agreement DE-A101-81EV10597, "Incorporation of DOE Specific Data into the Existing Computer-Aided Environmental Legislative Data System (CELDS)." The Technical Monitor was Mr. Robert Poe.

The work was done by the Modeling and Simulation Team, Environmental Division, U.S. Army Construction Engineering Research Laboratory (CERL). CERL personnel directly involved were Mr. Ronald Webster and Ms. Elizabeth Herrick. University of Illinois Library Research Center personnel directly involved were Ms. Barbara Howell and Ms. Mary Tadie Grieme.

**Dr. R. K. Jain is Chief of the Environmental Division. COL Louis J. Circeo is Commander and Director of CERL, and Dr. L. R. Shaffer is Technical Director.**

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# ADDITION OF COAL MINING REGULATIONS TO THE COMPUTER-AIDED ENVIRONMENTAL LEGISLATIVE DATA SYSTEM (CELDS)

## 1 INTRODUCTION

### Background

In May 1980, representatives of the Department of Energy (DOE) and the National Bureau of Standards (NBS) met to discuss possible solutions to the problem of identifying, maintaining, and disseminating information on state and Federal environmental laws and regulations. This information is needed to support DOE activities, specifically in the area of coal mining.

The Computer-Aided Environmental Legislative Data System (CELDS)<sup>1</sup> developed by the U.S. Army Construction Engineering Research Laboratory (CERL) contains environmental regulations of both Federal and state governments. CERL developed CELDS as part of the Environmental Technical Information System (ETIS)<sup>2</sup> to respond to the Army's need for rapid and easy access to environmental regulations relevant to a specific project or activity. Regulations are collected, abstracted, indexed, and entered in the system for later retrieval. CERL updates the system continuously and consults directly with administering agencies to maintain its accuracy.

DOE has no automated system for tracking environmental regulations; instead it relies on hard copies of the regulations, which creates updating problems. NBS obtained information on the CELDS system, which was reviewed by DOE. The two agencies concluded that there was a need for a coordinated effort to include DOE-specific information, as well as any new environmental regulations, in CELDS.

### Objectives

The objectives of this study were (1) to identify, obtain, and abstract coal mining regulations of interest to DOE for inclusion in CELDS, and (2) to develop a thesaurus of mining terms for indexing these regulations.

<sup>1</sup>J. van Weringh, et al., *Computer-Aided Environmental Legislative Data System (CELDS) User Manual*, Technical Report N-56/ADA061126 (U.S. Army Construction Engineering Research Laboratory, 1978).

<sup>2</sup>R. D. Webster, et al., *Modification and Extension of the Environmental Technical Information System (ETIS) for the Air Force*, Technical Report N-81/ADA079441 (CERL, 1979).

### Approach

Federal and state environmental regulations pertaining to coal mining were identified and abstracted. The abstracts for the appropriate regulations were incorporated into CELDS, and procedures for updating them were provided. A draft thesaurus was compiled for indexing and retrieving the mining regulations.

### Mode of Technology Transfer

It is recommended that the information in this report supplement existing technical documentation and user manuals on the CELDS database.

## 2 IDENTIFICATION OF REGULATIONS FOR ABSTRACTING

### The Federal Regulatory Program

The Federal Regulatory Program, mandated by the Federal Surface Mining Control and Reclamation Act of 1977 (SMCRA), established national environmental protection standards for regulating the effects of strip and underground coal mining. The Act created the Office of Surface Mining Reclamation and Enforcement (OSM) within the Department of the Interior and established regulations for coal mining on Federal and Indian lands. It also established certain minimum standards regulating the effects of strip and underground coal mining. The Act gives each state the responsibility for creating and monitoring its own regulatory program for surface and underground coal mining. Each state program must be approved by the OSM. This approval is in two forms: one is the initial regulatory program (IRP) and the other is the permanent regulatory program (PRP). A Federal program will be implemented in states that do not submit an acceptable program.

The IRP, which was published in 1977, set nine general performance standards for surface and underground coal mining. Within specified time limits, the state must submit its program for permanent approval under the PRP, which was published in 1979. The IRP performance standard and many other environmental regulations are part of the PRP. As a state's program is approved or disapproved, it is published in the *Federal Register*. Both the state regulatory programs, which are in various stages of approval, and the Federal regulatory programs have been added to CELDS.

The Department of the Interior has already proposed numerous changes to the two regulatory programs as

part of a department regulatory review process. If changes to the regulatory program are extensive, they will be reflected in changes in all state programs. The two programs are also being reviewed as part of the President's regulatory review program. Several proposed changes to the regulations have already been published which will significantly change the nature of the regulatory program. Thus, many of the current Federal regulations abstracted for CELDS will need to be changed as these proposed regulations become final. The states must incorporate any changes to the Federal programs into their programs, and this will also require continuous changes to CELDS records.

To incorporate appropriate regulations into CELDS, it was first necessary to identify all current laws pertinent to DOE interests. To do this, CERL contracted with the University of Illinois Library Research Center (LRC) to obtain the appropriate information. They began by abstracting the Federal permitting program. The abstracts were put into the following categories:

1. Surface mining
2. Underground mining
3. Coal exploration
4. Special programs
5. Federal lands.

Next, they abstracted the permanent program performance standards for hydrologic balance, explosives, air protection, revegetation, disposal of excess spoil, protection of fish and wildlife, topsoil, and coal processing wastes. Each performance standard was abstracted into the categories listed above. The state programs followed the same procedure.

When all the Federal regulations were entered into CELDS, a table was created in accession number 5582, showing the "Code of Federal Regulations" citation, the corresponding CELDS accession number, and a brief title of the regulation (see Appendix A). These regulations can be updated as necessary. The Federal abstracts are grouped into the following broad topics:

1. Indian lands
2. Surface mining exemptions

3. Surface mining initial program performance standards

4. Surface mining initial program special performance standards

5. Underground mining initial program general requirements and performance standards

6. Permits special categories of mining

7. Permits bonds and insurance

8. Surface mining permanent program performance standards

9. Federal program

10. Federal lands

11. Permits state or Federal program

12. Permits surface mining state or Federal program

13. Permits underground mining state or Federal program

14. Underground mining permanent program performance standards

15. Surface mining special permanent programs performance standards.

#### **State Regulatory Programs**

After the states pass laws and establish regulations to implement their regulatory programs, the OSM will approve or disapprove their programs. In the absence of an approved program, a state must comply with the Federal program. A state's program can be in one of six stages of approval:

1. Approved permanent program
2. Conditionally approved permanent program awaiting a final decision granting primacy to the state. It is conditional, based on correction of minor deficiencies.
3. Partially approved permanent program, which reflects an initial decision, but does not convey primacy. The program must be resubmitted for approval.

**Table 1**  
**States Which Have No Coal Mining or**  
**Exploration Activities**

Arizona	Nevada
California	New Hampshire
Connecticut	New Jersey
Delaware	New York
Florida	North Carolina
Hawai	South Carolina
Idaho	South Dakota
Maine	Vermont
Minnesota	Wisconsin
Nebraska	

4. Disapproved permanent program; the state must resubmit it.

5. Permanent program being developed by the state.

6. Federal program being developed for the state by the OSM.

Many states do not have an approved permanent program and may not know the date of final approval. Others have no coal mining or exploration for coal now and do not expect any before June 1985 (see Table 1).

Abstracts pertinent to the state regulatory programs are being added to CELDS as they become available.

### **3 INCORPORATION OF MINING REGULATIONS INTO CELDS**

LRC personnel collected data for the mining regulations by thoroughly studying the Federal Surface Mining Control and Reclamation Act and pursuant regulations. Copies of all relevant regulations were then copied for abstraction from the *Code of Federal Regulations* and the *Federal Register* updates. Once regulations pertaining to the two Federal regulatory programs had been identified, a search for the state regulations was begun. Correspondence was initiated with state agencies responsible for establishing mining

regulations. NBS provided notebooks containing certain state regulations; these were used to identify possible contacts. Since many of the notebooks either did not contain mining regulations or contained regulations which had not been updated for several years, contact was needed with practically all the states. Separate and uniquely tailored requests were sent to state regulatory agencies. Since state regulatory programs change constantly, this contact must be ongoing. Therefore, LRC asked to be put on routine mailing lists for regulatory changes either proposed or final.

The abstracting, indexing, and entering of the mining regulations into the CELDS database is in accordance with the format used for other CELDS records.<sup>3</sup> Appendix B briefly outlines the 12 CELDS record fields. As with all CELDS records, a full-text, hard copy of the regulation is kept in a state or Federal notebook in accession number order, if any user needs it. LRC maintains a card file system for the states and their regulatory agency(s). Each card has the name and address of the state contact(s), the status of the state program, and a master list of all pertinent mining regulations and laws received. Various inhouse materials are organized for future reference. Appendix C lists the state regulatory agencies identified in the project.

## **4 DEVELOPMENT OF THESAURUS**

Existing CELDS mining records must be indexed. This requires a thesaurus of mining terms. In compiling the terms for the CELDS thesaurus, CERL personnel tried to anticipate terminology for various types of mining, as well as terms for the environmental concerns of mining not already in the current CELDS thesaurus, such as GROUND WATER and HYDROLOGIC BALANCE. Only existing CELDS thesaurus terms are being added to the mining records now. When DOE approves the *Thesaurus of Mining Terms*, LRC personnel will add indexing terms to the mining records.

In March 1982, CERL finished the CELDS *Thesaurus of Mining Terms*. The draft copy was sent to DOE personnel for evaluation and revision. The

<sup>3</sup> J. van Wiering, et al., *Computer-Aided Environmental Legislative Data System (CELDS) User Manual*, Technical Report N-56/ADA061126 (U.S. Army Construction Engineering Research Laboratory, 1978).

thesaurus, which follows the same format as the CELDS thesaurus, is based on technology found in *Ecological and Environmental Thesaurus*<sup>4</sup> and *Environmental Chemical Thesaurus*.<sup>5</sup>

The technique of "literary warrant" was used in compiling the thesaurus terms; that is, the terms were taken from terminology found in both the regulations and the technology. Many regulations are prefaced by a section called "definitions," which defines the terms used in the regulation. These definitions sections were used a great deal to collect the terms. The terms were then mapped or matched to similar terms in the existing thesauri, and arranged hierarchically. An asterisk (\*) denotes terms which will eventually become part of a hierarchy of an existing CELDS term.

<sup>4</sup>R. A. Mayer, *Ecological and Environmental Thesaurus* (Columbus Battelle Memorial Institute, 1979).

<sup>5</sup>C. R. Shriner, *Environmental/Chemical Thesaurus* (Oak Ridge National Laboratory, 1978).

When the draft thesaurus is approved by DOE, ERC personnel will begin indexing CELDS records that deal with coal mining activities. Appendix D gives the CELDS *Thesaurus of Mining Terms*. Eventually, these terms will be merged into the existing CELDS thesaurus. Both thesauri will be used to index the CELDS records.

## 5 SUMMARY

This research identified mining regulations of interest to DOE, obtained text of these regulations, and abstracted them for inclusion in CELDS. To facilitate retrieval of these regulations so they will be useful to DOE personnel, a thesaurus of mining terms was developed for indexing them.

**APPENDIX A:  
TABLE OF FEDERAL MINING  
REGULATIONS AND CORRESPONDING  
CELDS ACCESSION NUMBERS**

law 5582

ttl: Table of Office of Surface Mining Reclamation and Enforcement Regulations for Coal Mining with CFR Citations, Accession Numbers, and Titles

dat: 6-17-82

ref: Code of Federal Regulations; Title 30: Mineral Resources Chapter 7  
Office of Surface Mining Reclamation and Enforcement, Department of the Interior; Parts 700, 710, 715-717, 731-733, 736, 741-744, 771, 776, 778-780, 782-785, 800, 801, 809, 815-819, 822-824, 826-828 30 U.S.C. 1201 et seq.).

me: land use

gps: us

ag: Office of Surface Mining Reclamation and Enforcement  
Department of the Interior  
1951 Constitution Avenue, N.W.  
Washington, D.C. 20240 (202)343-4953

bib: Same as legislative reference; Federal Register.

abs: Table 1 below lists the Office of Surface Mining Reclamation and Enforcement requirements for coal mining, by the Code of Federal Regulations (CFR) citations, with corresponding accession numbers and short titles, which have been abstracted and indexed for the CELDS database.

The Surface Mining Control and Reclamation Act of 1977 sets nationwide performance standards for surface and underground coal mine operations. These performance standards come in two phases: the initial and the permanent regulatory program. States desiring to continue regulating coal mining passed laws allowing them to enforce the performance standards of the initial regulatory program. Then, under a timetable established by Congress, States could submit a State program to the Secretary of the Interior allowing them to enforce the performance standards of the permanent regulatory program. State requirements, under both programs, are substantially the same as the Federal requirements, when applicable; some states may have additional or more stringent requirements in certain areas. For notable variances from or in addition to the Federal requirements, please refer to the abstracted data under states "GPS". The CELDS manual file contains copies of the state programs as they become available.

The above effective date in field 03 refers to the latest update of the data base in Table 1 concerning any CFR part number citations.

tbl: -----

Table 1

CFR	Accession No	Title
	Indian Lands	
25 122 102 105 107 111	5502	coal mining on Indian lands
25 122 106	5503	disposal of waste materials on Indian lands
30 700 11	Surface Mining 5447	exemptions from Federal surface mining regulations; initial or permanent program
Surface Mining - Initial Program - Performance Standards		
30 710 11	5504	general requirements
30 715 12	5505	signs and markers
30 715 13	5506	postmining land use
30 715 14	5507	backfilling and grading
30 715 15	5508	disposal of excess spoil
30 715 16	5509	topsoil handling
30 715 17 a,e,f	5510	water effluence and sedimentation ponds, discharge structures
30 715 17 b,c,d,g,h,i	5511	surface water monitoring; diversions; acid wastes; groundwater; water rights
30 715 17 j,k,l,m	5512	alluvial floors, impoundments; effect of hydrology of roads and buildings
30 715 18	5513	impoundment of waste or its use in dam construction
30 715 19	5514	explosives
30 715 20	5515	revegetation
Surface Mining - Initial Program - Special Performance Standards		
30 716 2	5516	steep slope
30 716 3	5517	mountaintop removal
30 716 4	5703	bituminous coal mines in Wyoming
30 716 5	5704	anthracite coal mines
30 716 6	5705	coal mines in Alaska
30 716 7	5518	prime farmland

Underground Mining - Initial Program - General Requirements and Performance Standards

30:717.11	5489	time schedules and general obligations
30:717.12	5490	signs and markers
30:717.14-.15	5491	backfilling and grading
30:717.17 a,e,f	5492	effluency and sedimentation ponds
30:717.17 b,h,i,l	5493	surface and groundwater monitoring and water rights
30:717.17 c,d,g	5494	diversions and acid and toxic materials
30:717.17 j,k	5495	hydrologic impact of roads and other transport facilities
30:717.18	5496	dams and impoundments of waste materials
30:717.20	5497	topsoil handling and re-vegetation

Federal Program

30:736.11 .21-.23	5565	federal program for a state
----------------------	------	-----------------------------

Federal Lands

30:741.11 .13 .15 .22-.24 and 30:742.12 .14-.17	5460	permits for surface coal mining on federal lands
30:744.11-.13	5461	performance standards for exploration, reclamation, and abandonment.

Permits - State or Federal Program

30:770.2-.4 .12 and 30:771.21-.27	5447	general requirements to conduct surface coal mining, reclamation, and coal exploration
30:771.11-.17	5448	continued operations of existing surface coal mining and reclamation operations under interim federal and state program permits
30:771.21-.27	see 5447	
30:778.11-.17	5449	general permit requirements to conduct coal exploration

Permits - Surface Mining	State or Federal Program	
30:780.13-.21	5450	legal, financial, compliance
30:779.11-.27	5451	environmental resources
30:780.11-.16	5452	minimum requirements for the operation plan
30:780.18-.37	5453	minimum requirements for the reclamation plan

Permits - Underground Mining - State or Federal Program		
30:782.13-.21	5454	legal, financial, compliance
30:783.11-.27	5455	environmental resources
30:784.1 11-.26	5456	minimum requirements for the reclamation and operation plan

Permits - Special Categories of Mining		
30:785.1 .11	5462	anthracite in Pennsylvania
30:785.1 .12	5463	bituminous in Wyoming
30:785.1 .13	5464	experimental practices
30:785.1 .14	5465	mountaintop removal
30:785.1 .15-.16	5466	steep slope and variances from approximate original contour restoration requirements for steep slope mining
30:785.1 .17	5467	prime farmland
30:785.1 .18	5468	variances for delay in contemporaneous reclamation requirements in combined underground and surface mining operations
30:785.1 .19	5469	alluvial valley floors
30:785.1 .20	5470	augering operations
30:785.1 .21	5471	coal processing plants not on permit area
30:785.1 .22	5472	in situ processing activities



# Permits - Bonds and Insurance

30 800 2- 13	5457	surface coal mining
30 801 2 15	5458	underground coal mines, coal processing plants, and long-term coal related facilities
30 809 1- 12	5459	anthracite surface coal mining and reclamation in Pennsylvania.

## Surface Mining - Permanent Program - Performance Standards

30 815 11- 17	5519	coal exploration
30 816 11	5520	signs and markers
30 816 13- 15	5521	sealing holes and casing
30 816 21- 25	5522	topsoil
30 816 41- 42 45- 46	5523	hydrology, effluent limitations, sedimenta- tion
30 816 43- 44 56- 57	5524	diversion, channelization, buffer zones
30 816 45- 46	see 5523	
30 816 47- 48 55	5525	acid spoil and waste discharge
30 816 49	5526	permanent and temporary impoundments
30 816 50- 54	5527	surface and groundwater protection and monitoring
30 816 55	see 5525	
30 816 56- 57	see 5524	
30 816 59 79 99	5528	coal recovery
30 816 61- 68	5529	explosives
30 816 71- 75	5530	disposal of excess spoil
30 816 79	see 5528	
30 816 81- 93	5531	coal processing wastes
30 816 97 133	5532	postmining land use and wildlife protection
30 816 99	see 5528	
30 816 100- 106	5533	reclamation by backfilling and grading
30 816 111- 117	5534	revegetation
30 816 131- 132	5535	temporary and permanent cessation

30:816.133	see 5532	
30:816.180-.181	5536	transportation and support facilities
Underground Mining - Permanent Program - Performance Standards		
30:817.11	5545	signs and markers
30:817.13-.15	5546	casing and sealing underground openings
30:817.21-.25	5547	topsoil
30:817.41-.42 .45-.46	5548	hydrologic balance, effluent limitations, and sedimentation control
30:817.43-.44 .56-.57	5549	hydrologic balance, diversions, and buffer zones
30:817.45-.46	see 5548	
30:817.47-.48 .55	5550	acid spoil and water discharge
30:817.49	5551	permanent and temporary impoundments
30:817.50-.53	5552	water monitoring, mine entry & access, discharge and transfer of wells
30:817.55	see 5550	
30:817.56-.57	see 5549	
30:817.59 .99	5553	coal recovery, coal slides
30:817.61-.68	5554	explosives
30:817.71-.74	5555	disposal of excess spoil
30:817.81-.93	5556	coal processing waste and waste banks
30:817.97 .133	5557	postmining land use and protection of wildlife
30:817.99	see 5553	
30:817.100-.106	5558	backfilling and grading
30:817.111-.117	5559	revegetation
30:817.121-.126	5560	subsidence control
30:817.131-.132	5561	temporary and Permanent cessation of operations.
30:817.133	see 5557	
30:817.180-.181	5562	transportation and support facilities

Surface Mining - Special Permanent Programs - Performance Standards

30:818.4-.15	5537	concurrent surface mining and underground mining
30:819.11	5538	auger mining.
30:820.11	5706	anthracite coal mines in Pennsylvania
30:822.11-.14	5539	operations on alluvial valley floors
30:823.11-.15	5540	operations on prime farmlands
30:824.11	5541	mountaintop removal
30:825.2,.11,.12	5707	bituminous coal mines in Wyoming
30:826.12-.15	5542	steep slope mining
30:827.12	5543	coal processing plants not at or near the mine site or permit area
30:828.11-.12	5544	in situ processing

Note: The following 30 CFR Chapter VII regulations have not been abstracted for the database:

1. Subchapter A -- General (definitions, financial interests) exception: 30:700.11 abstracted;
2. Part 718-725 (administration inspections, penalties for initial program);
3. Parts 733-735 (administration for permanent program);
4. Subchapter F -- Areas unsuitable for mining;
5. Parts 786-795 (administration, permit handling, SOAP);
6. Parts 805-808 (administration of bonds and insurance);
7. Subchapter L -- Inspection and Enforcement Procedures;
8. Subchapter M -- Training and Certificate Program for Blasters;
9. Subchapter P -- Protection of Employees;
10. Subchapter R -- Abandoned Mine Land Reclamation;
11. Subchapter S -- Mining and Mineral Research Institutes;

Subchapter T -- Programs for States are accessible under the states "GPS".

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**APPENDIX B:**  
**THE CELDS RECORDS FIELDS**

1. ACC--accession number
2. TTL--title of the regulation
3. DAT--effective date of the latest form of the regulation
4. REF--legislative reference
5. MEC--major environmental category
6. GPS--geopolitical scope
7. AGY--agency name and address
8. BIB--bibliographic source of the regulation
9. ABS--abstract of the regulation
10. TBL--tables for numerical standards
11. ATT--environmental attributes
12. KEY--keywords (index terms from the CELDS thesaurus)

**APPENDIX C:  
LIST OF STATE REGULATORY AGENCIES**

Surface Mining Reclamation Commission  
P.O. Box 2390  
Jasper, Alabama 35501

Department of Natural Resources  
Division of Minerals and Energy Management  
Pouch 7-005  
Anchorage, Alaska 99510

Department of Pollution Control and Ecology  
Surface Mining and Reclamation Section  
8001 N. National Drive  
Little Rock, Arkansas 72201

Department of Natural Resources  
1313 Sherman St.  
Denver, Colorado 80203

Department of Mines and Minerals  
Land Reclamation Division  
227 S. 7th St.  
Suite 204  
Springfield, Illinois 62708

Department of Natural Resources  
Division of Reclamation  
309 W. Washington St.  
Room 201  
Indianapolis, Indiana 46204

Department of Soil Conservation  
Mines and Minerals Division  
Wallace State Office Bldg.  
Des Moines, Iowa 50319

Mined Land Conservation and Reclamation Board  
P.O. Box 1418  
107 W. 11th St.  
Pittsburg, Kansas 66762

Bureau of Surface Mining Reclamation and Enforcement  
Third Floor Capital Plaza Tower  
Frankfort, Kentucky 40601

Department of Natural Resources  
Surface Mining Division  
P.O. Box 44275  
625 North 4th St.  
Baton Rouge, Louisiana 70804

Department of Natural Resources  
Energy Administration--Bureau of Mines  
69 Hill St.  
Frostburg, Maryland 21532

Department of Natural Resources  
Bureau of Geology and Energy Resources  
2525 N. West St.  
Jackson, Mississippi 39216

Department of Natural Resources  
Land Reclamation Commission  
P. O. Box 1368  
1026-D Northeast Dr.  
Jefferson City, Missouri 65102

Department of State Lands  
Reclamation Division  
1625 Eleventh Ave.  
Helena, Montana 59620

Energy and Minerals Department  
Bureau of Surface Mining  
Mining and Minerals Division  
P.O. Box 2860  
Santa Fe, New Mexico 87501

Public Service Commission  
Reclamation Division  
Capitol Bldg.  
Bismarck, North Dakota 58505

Department of Natural Resources  
Division of Reclamation  
Fountain Square, Bldg. B-3  
Columbus, Ohio 43224

Department of Mines  
4040 N. Lincoln  
Suite 107  
Oklahoma, City, Oklahoma 73105

Department of Environmental Resources  
Office of Environmental Protection  
P.O. Box 2063  
Fulton Bldg.  
Harrisburg, Pennsylvania 17120

Department of Conservation  
Division of Surface Mining and Reclamation  
1720 W. End Ave.  
Suite 507  
Nashville, Tennessee 37203

Railroad Commission of Texas  
Surface Mining and Reclamation Division  
105 W. Riverside Drive  
Capitol Station  
P.O. Drawer 12967  
Austin, Texas 78711

Natural Resources and Energy  
Oil, Gas and Mining  
4241 State Office Bldg.  
Salt Lake City, Utah 84114

Department of conservation and Economic Development  
1100 Washington Bldg., Capitol Square  
Richmond, Virginia 23219

Department of Natural Resources  
Division of Geology and Earth Resources  
Mail Stop PY-12  
Olympia, Washington 98504

Department of Natural Resources  
Division of Reclamation  
1800 Washington St., East  
Room 322  
Charleston, West Virginia 25311

Department of Environmental Quality  
Land Quality Division  
401 West 19th St.  
Cheyenne, Wyoming 82002

FEDERAL AGENCY:

U.S. Department of the Interior  
Office of Surface Mining Reclamation and Enforcement  
1951 Constitutional Avenue, N.W.  
Washington, D.C. 20240

## APPENDIX D: THESAURUS OF MINING TERMS

abandoned mines  
BT mines

acid mine drainage  
USE acid mine water

acid mine wastes  
BT mining wastes

acid mine water  
UF acid mine drainage  
SN water with a ph of less than 6.0 and in which total acidity exceeds total alkalinity discharged from an active, inactive or abandoned surface coal mine and reclamation operation or from an area affected by surface coal mining and reclamation operations.  
BT mine water  
RT point sources \*

alluvial valley floors  
RT mining

anthracite  
BT coal \*

aquifers  
SN an underground water-bearing geological formation.  
RT ground water  
leachate

auguring operations  
RT mining

backfilling  
RT reclamation

bituminous coal  
BT coal \*

buffer zone

casing

channelization \*  
UF diversions

coal \*  
BT fossil fuels  
NT anthracite  
bituminous coal  
lignite  
RT coke \*

coal exploration

coal mining



BT mining  
RT overburden  
    spoil

coal processing  
RT in situ processing

diesel fuels  
BT petroleum \*  
    petroleum products

diversions  
USE channelization \*

drainage  
USE leachate

drilling fluids  
RT lubricants  
    oil well drilling

energy sources  
BT natural resources  
NT fuel gases  
    fuel oil \*  
    fuels \*

experimental practices mining  
BT mining

federal lands  
SN lands, including mineral interests, owned by the U.S. government  
    Does not include lands within the boundaries of any federal  
    Indian reservation.  
RT land classification \*

fossil fuels  
BT fuels \*  
NT coal \*  
    peat  
    petroleum \*  
    shale oil

fuel gases  
BT energy sources  
NT liquefied petroleum gases  
    natural gases

fuel oil \*  
BT energy sources

fuels \*  
BT energy sources

NT fossil fuels  
heating fuels  
solid waste fuels  
synthetic fuels

fugitive dust  
BT dust \*  
RT air pollution sources \*

grading  
RT reclamation

ground water  
RT aquifers  
leachate  
water quality standards \*

heating fuel  
BT petroleum products

heating fuels  
BT fuels \*

hydrologic balance  
SN relationship between the quality and quantity of water inflow to  
water outflow and water storage in a hydrologic unit.  
RT effluents \*  
sedimentation ponds

in situ processing  
RT coal processing

indian lands  
SN lands, including mineral interests, within the boundaries of any  
federal indian reservation.  
RT land classification \*

injection wells  
BT wells  
RT oil well drilling

land classification \*  
RT federal lands  
indian lands  
prime farmlands

land subsidence  
RT mining

leachate  
UF drainage  
RT aquifers  
ground water

lignite  
BT coal \*

liquefied natural gases  
BT natural gases

liquefied petroleum gases  
BT fuel gases

lubricants  
BT petroleum products  
RT drilling fluids

mine drainage  
RT mine water

mine water  
NT acid mine water  
RT mine drainage

mineral deposits

mineral lands  
USE mineral resources

mineral resources  
UF mineral lands  
BT natural resources  
RT mineral rights

mineral rights  
RT mineral resources

mines  
NT abandoned mines  
    pit mines  
    strip mines  
RT mining

mining  
NT coal mining  
    experimental practices mining  
    mountaintop removal mining  
    open pit mining  
    steep slope mining  
    strip mining  
    surface mining  
    underground mining  
RT alluvial valley floors  
    auguring operations  
    land subsidence  
    mines  
    post-mining  
    spoil banks

mining claims

mining wastes

NT acid mine wastes

mountaintop removal mining

BT mining

natural gases

BT fuel gases

NT liquefied natural gases

natural resources

NT energy sources

mineral resources

water resources

wildlife \*

oil industry

USE petroleum industry

oil recovery

RT oil well drilling

oil refineries

USE refineries \*

oil well drilling

RT drilling fluids

injection wells

oil recovery

oil wells

oil wells

BT wells \*

RT oil well drilling

open pit mining

BT mining

operation plan

overburden

SN material of any nature, consolidated or unconsolidated, that overlies  
a coal deposit, excluding topsoil.

RT coal mining

peat

SN a soft light swamp soil consisting mostly of decayed vegetation

BT fossil fuels

petroleum \*

BT fossil fuels

NT diesel fuels

RT gasoline \*

oil spills \*

petroleum coke

BT petroleum products

petroleum industry

UF oil industry

petroleum products

NT diesel fuels

gasoline \*

heating fuel

lubricants

petroleum coke

pit mines

BT mines

post-mining

RT mining

prime farmlands

RT land classification \*

reclamation

RT backfilling

grading

revegetation

revegetation

RT reclamation

sealing

sedimentation ponds

RT hydrologic balance

shale oil

BT fossil fuels

signs (markers)

slope stability

solid waste fuels

BT fuels \*

spoil

SN overburden that has been removed during surface coal mining operations.

RT coal mining

spoil banks

spoil banks  
RT mining  
spoil

steep slope mining  
BT mining

strip mines  
BT mines

strip mining  
BT mining

surface mining  
BT mining

surface water  
RT water quality standards \*

synthetic fuels  
BT fuels \*

topsoil  
SN the A soil horizon layer of the three major soil horizons.

underground mining  
BT mining

water resources  
BT natural resources  
RT wells

water rights \*\*

water wells  
BT wells \*

wells \*  
NT injection wells  
oil wells  
water wells  
RT water resources

\* = existing term in the CELDS thesaurus (Technical Report N-56, Sept. 1976).

\*\* = existing term in the CELDS thesaurus, but scope note will be eliminated.



1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

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ATTN: Chief, NAEEN-1  
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Pittsburgh 15222  
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Philadelphia 19106  
ATTN: Chief, NAPPEN-F  
Baltimore 21201  
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Norfolk 23510  
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 Lower Mississippi Valley Office  
 AITN: Chief, ENGR  
 New Orleans 70001  
 AITN: Chief, ENGR Div  
 North Central 46065  
 AITN: Chief, ENGR Planning and  
 Southwestern 75202  
 AITN: Chief, SWDCO-C  
 South Pacific 94111  
 AITN: Laboratory  
 Pacific Ocean 76858  
 AITN: Chief, ENGR Div  
 AITN: Chief, POWEC-F  
 North Pacific 97204  
 AITN: Laboratory  
 AITN: Chief, ENGR Div

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Webster, Ronald Dwight

Addition of coal mining regulations to the Computer-Aided Environmental Legislative Data System (CELDS) / by Ronald D. Webster, Elizabeth Herrick, Mary Tadie Grieme. -- Champaign, Ill : Construction Engineering Research Laboratory ; available from NTIS, 1983.

26 p. (Technical report : Construction Engineering Research Laboratory ; N-161).

1. Coal mines and mining -- law and legislation. 2. Mining law.  
3. Computer-Aided Environmental Legislative Data System (CELDS). I. Herrick, Elizabeth. II. Grieme, Mary Tadie. III. Title. IV. Series: Technical report (Construction Engineering Research Laboratory) ; N-161.

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LME